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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/729,751	12/04/2003	Anthony R. Bonaccio	BUR9-2003-0099	3178

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EXAMINER

BAE, JI H

ART UNIT	PAPER NUMBER
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2115

DATE MAILED: 09/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/729,751

Applicant(s)

BONACCIO ET AL.

Examiner

Ji H. Bae

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims 1-22 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-7, 9-18, and 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carlson, U.S. Patent No. 6,861,865, in view of Flower, U.S. Patent No. 5,688,232.

Regarding claim 1, Carlson teaches an integrated circuit comprising [Fig. 2a]:
one or more repairable circuit elements [logic blocks 200-203, 250]; and
a repair processor for repairing a repairable circuit element of said one or more circuit elements [col. 2, lines 1-6].

Carlson does not teach a pulse generator or cycle counter.

Flower teaches an integrated circuit [Fig. 2, controller ASIC 20, col. 4, lines 24-29] comprised of a pulse generator and a cycle counter for counting cycles of said pulsed signal. The pulse generator and cycle counter comprise a life timer circuit for the controller 20, indicating that the controller circuit has exceeded its useful life after a predetermined time [col. 3, lines 32-44].

It would have been obvious to one of ordinary skill in the art to combine the teachings of Carlson and Flower by implementing redundant circuit blocks, along with the means to repair

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them, in the system of Flower. Both Flower and Carlson are directed towards integrated circuits. Flower teaches that integrated circuits have limited lifetimes, after which they must be discarded. The teachings of Carlson would improve the system of Flower by providing additional circuit blocks that could replace the one being currently used, instead of discarding the entire system, thus extending the useful lifetime of the device.

The examiner notes the following section of applicant's remarks [page 13, second paragraph]:

"Applicants points out that swapping one circuit element for another is not affecting a repair of the replaced circuit element because nothing has been actually done to the swapped out circuit element and it is reused without any changes to it of any sort. Swapping out a circuit element might be considered a repair of the integrated circuit chip, but can not be considered a repair of the circuit element itself."

The examiner find this line of reasoning in applicant's remarks to be inconsistent with the teachings of applicant's specification. Specifically, applicant's specification appears to teach that repairing a circuit element equates to replacing it [applicant's specification, page 8, line 5 to page 9 line 3]. Applicant's specification does not appear to require anything to be "done" with the swapped out circuit element, and in fact teaches that subsequent redundant logic blocks replace previously used blocks in a sequential fashion. Therefore, the examiner dismisses applicant's argument and accepts the specification's definition of repairing.

Regarding claim 2, Carlson teaches permanently disabling said repairable element and replacing it with a redundant circuit element [col. 3, line 62 to col. 4, line 10].

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Regarding claim 3, Flower teaches that the pulsed signal is a clock signal.

Regarding claim 4, Flower teaches a memory circuit for storing a cycle count [EEPROM, col. 3, line 46].

Regarding claim 5, Flower teaches a trigger signal when said predetermined cycle count is reached [control signal, col. 3, line 43]. In the combination of Flower with Carlson, this control signal would indicate the expiration of the controller's lifetime, and thus trigger its replacement.

Regarding claim 6, it would have been obvious to one ordinary skill in the art for the trigger signal to comprise a subset of bits encoding a current cycle count.

Regarding claim 7, the limitations recited are obvious in view of design choice. The inventive teachings could have been applied to any kind of circuit element.

Regarding claim 9, Carlson teaches a fuse bank [col. 3, line 3].

Regarding claim 10, Carlson teaches performing multiple repairs by repairing previously repaired circuit elements.

Regarding claim 11, it would have been obvious to one of ordinary skill in the art to provide a redundant cycle counter.

Regarding claims 12-18 and 20-22, Carlson and Flower teach the integrated circuit of claims 1-7 and 9-11. Carlson and Flower also teaches the method implemented by the claimed circuit.

Claim 8 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carlson/Flower as applied to claims 1 and 12 above, and further in view of Nogami et al, U.S. Patent No. 5,459,342.

Regarding claims 8 and 19, Carlson/Flower teaches the circuit and method of claims 1 and 12, but does not teach that the circuit is implemented as an FGPA.

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Nogami teaches an FPGA with spare circuit blocks that can be used to replace defective circuit blocks [abstract].

It would have been obvious to one of ordinary skill in the art to further modify Carlson/Flower by implementing the system in an FGPA as taught by Nogami. Carlson teaches a series of replaceable logic blocks that can be selected by a bank of fuses, analogous to the FGPA taught by Nogami [col. 3 ,lines 7-20]. Thus Carlson suggests that the integrated circuit may be implemented as an FPGA. Additionally, FPGAs are well-known in the art for providing greater flexibility over hard-wired circuits, owing to their programmability.

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ji H. Bae whose telephone number is 571-272-7181. The examiner can normally be reached on Monday-Friday, 10 am to 6:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Lee can be reached on 571-272-3667. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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